THE RARS -EXCITER-

RALEIGH AMATEUR RADIO SOCIETY
WORLDWIDE FRIENDSHIP

CLUB CALL: W4DW
REPEATER: W4DW/R 146.04/64

September, 1986
Issue 198

LEADING EDGE

29,22
25,27

SHERMAN STARNES
W4TZU

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26/

The Japanese amateur radio satellite, JAS-1, was sucessfully launched at 2045 UTC on August 12 and appears to be operating well. The craft had originally been scheduled for 2030 UTC on July 31 and was rescheduled for the same time on August 7. Subsequently it was scheduled for 2031 UTC on August 12 and finally made it after an additional fourteen minute delay.

I listened that evening for the new satellite, which was renamed Japan-OSCAR-12 or JO-12 upon reaching orbit as has been traditional since OSCAR-1 twenty five years ago. I switched the HF rig between the transverter which is used to receive 70 cm. and the AMSAT net on 75 meters, listening to others report acquisition of the spacecraft beacon, then back to the transverter but no satellite. It was the next evening when I discovered my "technical difficulty". What with the HF radio, an antenna switch, a transverter and a UHF amplifier I had simply missed a connection and was not on the UHF antenna.

P1

P2

The JO-12 beacon at 435.795 mHz. is moderate in strength, presently sending CW telemetry. It can be switched to phase-shift keying on

17,44

command. The telemetry reports on twelve voltages, currents and temperatures and thirty three status conditions such as on/off and auto/manual. The mode JA transponder has been on from the beginning with fairly good signals on CW and SSB. It will be several weeks before the mode JD, or packet transponder will be activated. Some improvements are indicated at W4TZU, notably a lower loss UHF feedline and a GaSFET preamp.

As a communications link becomes more complex, one can expect to encounter new problems (challenges). One thing which gives me something else to do in my spare time is to determine the calibration accuracy of the local oscillator in the transverter. At 435 mHz. the doppler change in frequency from the JO-12 beacon is +/- 8 kHz. When added to the apparent discrepancy in local oscillator frequency, the overall error can make it particularly difficult to locate the JO-12 beacon.

For a period of time OSCAR-10 appeared to be on the road to recovery. The operating periods were almost back to normal but on August 11, the on-board computer memory again reached an intolerable error rate and the system crashed. It looks as if its usefulness is going to be limited unless power can be removed in some graceful manner long enough for the accumulated charge on the memory chips to dissipate. Its a risky approach but it is about all that is feasible and there is little to lose.

18,44

EDITOR: ANN M. BRADLEY, WA4APK - 5207 DENISE DRIVE - RALEIGH, NC 27606 - (919) 851-2437

MINUTES OF THE MEETING

1986 RARS OFFICERS

President........Bruce Eggers.....779-0266
Vice President...Rollin Ransom....779-5021
Secretary........Sue Meyer Parks..544-7952
Treasurer........Tim Buehlman.....851-7738

The regular monthly meeting of the Raleigh Amateur Radio Society was held Aug. 6, 1986 at the First Presbyterian Church on S. Salisbury St. President Bruce Eggers, WA9NEW, called the meeting to order and welcomed the 29 members and 6 guests.

The first item of business was the summary of the July 16 Board meeting. Topics discussed included: 1) The status of RARS membership in CVRA/SERA. Although we are not currently listed as a member, we are now paid up. Bruce, WA9NEW, has compiled some historical data for the journal. 2) A nominations committee needs to be formed soon. The office of VP and Treasurer need to be filled. 3) YL RARS is planning a picnic sometime in Oct. The site has not been determined. 4) The Finantial Review Committee reported to the Board they saw nothing irregular with the Treasurers bookkeeping over the past year. They gave praise to Norm for a job well done.

KN4G, Norm, is resigning his office as Treasurer. Tim Buehlmann, N4IQA, volunteered to serve out the rest of the appointment. The Finantial Review Committee represented by Jim Babcock, K4ABJ, told the membership of the report which was presented to the Board at the July meeting. Norm presented his 85-86 Finantial Report to the club. A motion was passed to accept the finantial report.

The President reported next year RARS will be included in the Special Service Club list found in the ARRL Repeater Directory. We have been eligible for years and its about time we were recognized.

The club received a copy of one of the latest ARRL publications " Gil, a Collection of Cartoons From QST" We have permission to reprint cartoons in The Exciter.

Training Director Larry, N4MCC, has initiated the start of a novice class to begin Sept. 8. Volunteers are needed to help teach the class. Contact Larry.

Other items mentioned were: Tom, N4IZE, reported via Walter, KB4LWD, the Hatteras special events photo is still being considered for the Oct. or Nov. cover of QST. Ann, WA4APK, reminded everyone of the YL RARS meeting Aug. 13. Marty, NY4H, told the group she received a QSL card direct from Russia. Chuck, KB4MDZ, has Wolfhong certificates for thoes who participated during the Hamfest. An idea was proposed to have a bus chartered to the ARRL National Convention next year(July).

Due to circumstances beyond the control of our illustrious Vice President Rollin, NF4P, there was no program. A few prizes were given, then the meeting was adjourned followed by fellowship.

Sue Meyer Parks
RARS Secretary

CARIBBEAN ISLANDS DX-PEDITION

Ron, AA4VK, and Bert, WA4TLI, will operate from Dutch Sint Maarten, October 18-19; French St. Martin, October 20-26 (including the CQWW Phone Contest); and Anquilla, October 23-24. Call signs will be portable PJ7, F5, and VP2E, respectively. They will be active on 160-10M with 160-40M emphasized prior to the contest.

HAPPY LABOR DAY!

A TRIP TO THE BEACH - THE SAGA CONTINUES

In June a Special Event Team set up a station on Hatteras Island, with Elizabeth II as a background, to commemorate the 400th anniversary of the colonization of Roanoke Island. About six weeks ago an article, Smoke Signals, written by Bob Dean of IBM and contributed to by Tim Buehlman, N4IQA, was submitted, along with a cover, photo, to QST for possible publication---

On August 6, I received a letter in the mail from Mr. Andrew Trip, Editor for "Up Front in QST" Our submitted material was forwarded to him for use in his column. Therefore a summarization of our original article will appear in the October issue--watch for it!

In a phone conversation I addressed the question as to why the article was turned down as well as the cover photo. One main reason was that it was too regionalized and probably not of national importance pertaining to hams across the country.

Well, you can't fight city hall so several points were agreed upon for his area of responsibility. QST will summarize the article submitted and thus will allow us to resubmit to "CQ" without any copywrite violation. Also "QST" will use photos (max g 2) that will not be submitted to "CQ" to avoid conflict. We still made "QST" as the Raleigh Amateur Radio Society so we should all be proud. Mr Trip liked the article and felt it was well written and wished RARS good luck in submission to "CQ" for possible publication.

I am currently awaiting "CQ's" response and I am hopeful that the editorial staff will see the historical significance. On August 12th, Walter, KB4LWD; Tim, M4IQA, and I attended the Durham ARS for a presentation on our Special Events Project and a slide show followed. The reception was very cordial and warm.

73, Tom, N4IZE

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* * * WAKE COUNTY HAS NEW EC * * *

A big RARS "WELCOME ABOARD" to new EC and RARS member Tom Parker, N4MYB. Tom succeeds Bruce, KI4ME, who recently took on responsibility for the ARES Second District. Now we have the SEC, DEC, County EC and Assistant SEC for Skywarn all in Wake County. Good Show! Tom, the RARS podium and the pages of the Exciter are always open to you and I'm sure the membership will afford you the same outstanding support they always have provided to our EC's. TNX GUD LUK ES 73 DE W4DW.

ARES CONNECTOR REVISITED

WB4YQA - WA9NEW, KI4ME, AB4S

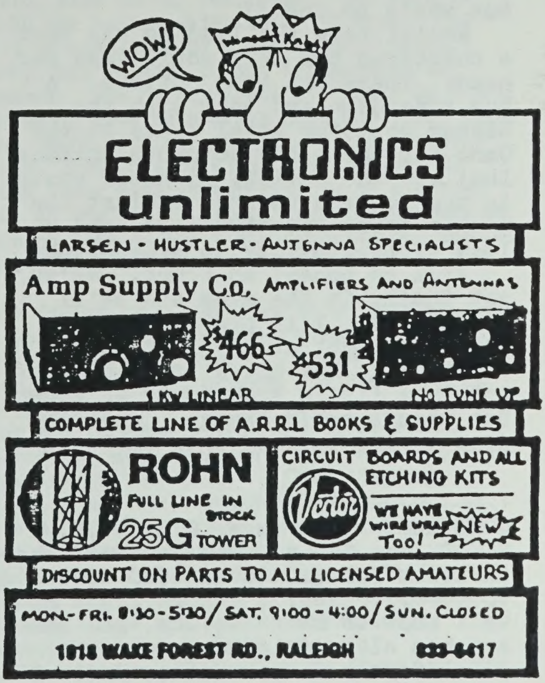
You remember, back a couple of years ago, the move to get standarized 12V connectors on gear that might be used in a local emergency? Probably worth looking at again.

The 'standard' is a Cinch-Jones connector, two-pin, polarized. The plug, to plug into 12V, is Radio Shack 274-201, and the receptacle, to be provided 12V from an ac supply or a lighter plug, is Radio Shack 274-202. The polarity is negative to the wide pin and positive to the narrow pin.

Try it. It just might 'save-the-day' for you one of these days.

UPGRADE - UPDATE

Upgrade exams will be offered by the WCARS VEC at Kilgore Hall on NCSU's campus, Saturday at 8AM. Walk-ins accepted if you're there AT LEAST 15 minutes early. Contact John, WM4P at 834-5001 or 834-5568.



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'NEW LINE

by Bruce Eggers, WA9NEW
President, RARS

N4IQA vice KN4G

No, this ain't a raid. The OTHER definition of 'vice'. If you didn't read the August column and you missed last month's meeting, you may not know. Norm resigned and Tim accepted the challenge. We're convinced Norm couldn't have made off with enough of the treasury to spring for a cup of coffee without coughing up a quarter, let alone enough to fly to Japan. But that's where he's going, at least for a few months. TNX ES GL BT KN4G DE W4DW QNI N4IQA

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THE NATIONAL COMES TO ATLANTA!

It's not too early to plan. The 1987 ARRL National Convention will be held in Atlanta next year in the middle of July. The Good Lord willin' and the creeks don't rise, we'll be there. How about you? This is as close to Raleigh as we've had a National since the '84 in NYC. But who'd go there?

Who'll take the lead to see what a chartered bus trip would cost per head? There are some options. A bus ride down and back with the higher cost for hotel space at the Omni (or maybe the downtown Holiday Inn) vs. the savings on hotel costs in the suburbs weighed against the higher transportation costs and a loss of flexibility in scheduling.

I'll be honest up front. We've got family in the area and we'll drive down. I'll probably spend Saturday night at an Atlanta suburb motel while Pat has a relaxing week-end in a little town south of Athens. But things could change. Who'll pick up the ball on this one?

-...

GIL

QCWA members remember GIL. GIL, W1CJD, was the guy who drew all those cartoons for QST (over 1500 according to W1CUT). Jeeves was at least as well know to DXers as Gus, and almost any ham club could have been the model for the Podunk Hollow Radio Club come Field Day. GIL passed away in 1966. His last work for QST's cover was the April issue announcing that year's ARRL national convention in Boston.

The League has reprinted many of GIL's cartoons over the years and now offers a 126 page collection of nearly 300 of his better efforts. RARS has received permission to reprint some of those cartoons in the Exciter. They won't appear very often. First priority for space always goes to our regular columns, club business, advertisers, and so forth. But watch for them. They'll add some class to an already outstanding newsletter.

But why not pull a fin from under the fold-down flap in your wallet and spring for a copy. It's a FB antidote for a touch of nostalgia.

-...

ARRL, AMSAT, CVRA-SERA, PCRN, WDCG, RARS and YOU!

You get this newsletter because you support RARS and our ability to enhance Amateur Radio on the local level. If you don't individually support the ARRL or AMSAT, with their ability to influence the course of Amateur Radio on an international and national basis, or CVRA-SERA, with its ability to provide a pleasant operating environment on UHF and VHF throughout the region, you have the consolation that your club supports all of them. Toss in the Piedmont Coastal Repeater Network so vital to emergency communications in North Carolina, and the Wake Digital Communications Group, dedicated to the advancement of state-of-the-art digital modes, and you're getting more consolation than you deserve.

Nobody expects everybody to suppor every worthwhile organization. But all of these groups could use your direct, personal support. And everyone of us benefits from the efforts of each of these organizations. I'm proud to say I support all of them. Many RARS members do. Give me a call if you have questions.

-...

HAM CLASSES IN YOUR KIDS' SCHOOL?

There's a help wanted ad for instructors in this month's issue. At the drafting stage that referred only to our annual Novice and upgrade classes at the McKimmon Center. Larry wasn't thinking of the Explorer Post, but we'll take care of it, and I hadn't told him of our current initiative with the county school system's science coordinator. But I want you to know that Mr. Midgett has promised to get a one page flyer on RARS letterhead into the hands of each of some 250 science teachers before school starts. And, with the ARRL's help, we may be able to provide a copy of the new 'Archie' comic book to each. Time and weight limitations permitting, we may have a copy of the flyer in this issue of the Exciter.

If you know a science teacher, or have a harmonic in a Wake County middle or senior high school, how about asking the teacher about Amateur Radio?

And next, how many can help if we get asked for a demo or, hope against hope, to teach a Novice class in one or more schools? Larry and I think RARS is big enough to handle more than one class at a time. Can we count on YOU?

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DEFINITIONS

"Q" SIGNALS -- Used by Morse code operators as abbreviations to save time. Used by voice operators who can't remember the words.

CAPACITOR -- Electronic component used to store a charge, or to pass unwanted signals to ground. When shorted, can be used in a high voltage supply for 4th of July fireworks.

HAM OPERATORS -- Extraordinarily dedicated individuals who devote hours of study of electronics, mathematics, regulations, and Morse code in order to be allowed to discuss the weather over the radio.

ANTENNA TUNER - A piece of equipment designed to fool a transmitter into thinking the antenna was cut to a length which resonates at Amateur frequencies. Also fools the operator into thinking that the antenna is working.

YL RARS * FIRST ANNUAL RARS PICNIC *

YL RARS met August 13 at Cameron Village K & W Cafeteria with 10 members present. At least four of our regular participants were unable to attend. Each month we see a new face or two and we hope more of you YLs will choose to join us in the future. I use the word "join" loosely. Joining is simply a matter of being there and giving the benefit of your company and your input to whatever project or activity happens to be "in the mill" at that time. Remember--each second Wednesday (Sept 10 coming up), Meeting Room #1, Cameron Village K & W Cafeteria, 6:30 pm.

This month the entire meeting was devoted to RARS first Annual Fall Picnic. We're calling it a pig-pickin' but Don Murray's Barbecue will do the pickin' for us. It's to be on Saturday, Oct 11, at the Cary Lion's Club Shelter (site of the Cary Swapfest). Watch next month's Exciter for a map and more explicit directions. Plan to come between four and four-thirty. We plan to start serving at five. The shelter has picnic tables for eating but do bring folding chairs for sitting and visiting. If you have kids they might want to bring a ball and bat or something to initiate a little group activity.

The menu is Barbecue, Fried Chicken, Brunswick Stew, Boiled Potatoes, Slaw, Corn Sticks/Rolls, plus Coffe, Tea, Beer. The cost is $6.50 per person--kids under 10 free. You will be contacted by a member of YL RARS. Sorry, but we have to ask for payment in advance. Don Murray wants his money up front and we'll have to operate that way, too. Send your check made out to RARS to Mrs. Norman Plaks; 1205 Country Ridge Rd; Raleigh, NC 27609 Your reservation will be on a master list at the picnic site. Reservations may be made as late as Oct 7 and reservations may be cancelled with refund up until that time.

This is the first undertaking of YL RARS and we hope it be a successful event that we'll want to repeat each year. We don't normally have a RARS social between the March Awards Banquet and the Christmas party. By October, kids are in school, vacation is over, the weather is more manageable and we hope participation will be good. YL RARS did the planning and the execution. Our members will set-up, serve and clean up in order to keep down the cost to you and to RARS. If you can lend a hand with the "chores", you'll be greatly appreciated. Don't forget Saturday, October 11 for the picnic---Wednesday, September 10 for YL RARS. See ya'.

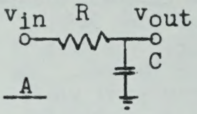
Ann Bradley, WA4APK, Pres. YL-RARS

TTNTT - OP-AMPS, PART 3

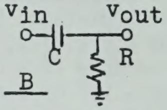
WA9NEW

The last time we said we'd talk about using op-amps in active filter design and we will. But first, let's get one thing straight right up front. Adding an op-amp to a low-pass or high-pass filter does nothing to change the frequency response of a filter's design. Don't get me wrong. It could. An op-amp by itself exhibits a 20 dB per decade roll-off above some frequency. But that would help only in low-pass filters and would be difficult to design for. A single resistor and capacitor will provide a 20 dB per decade roll-off and can be used as either a low-pass or a high-pass filter and two or more such networks can be combined to form either a bandpass or a notch filter. So why use op-amps in filter designs?

Well, for one thing they can provide some gain. For another, in multi-pole design, they can provide isolation and avoid loading effects between stages. But first, let's look at the basics of using resistors and capacitors in filters.



A



B

From what you needed to know for the Tech/General test, $X_C=1/2\pi fC$. If C is .22uF, then at a frequency of 723 Hz, X_C= 1k. If R is also 1k, then in both circuits, at a frequency of 723 Hz, $v_{out}=v_{in}/\sqrt{2}$ and v_{out} is '3 dB down'. Circuit A is a low-pass filter and Circuit B is a high-pass filter. But keep in mind, both are just ac voltage dividers, as are all filters, and all such circuits just obey Ohm's law. (Always remember what Georg said!)

But a single RC network doesn't provide much of a roll-off. In A, at twice 723 Hz, or 1446 Hz, v_{out} is still greater than ½ of what it was at 723 Hz. In B, v_{out} is still greater than ½ of what it is at 723 Hz at a frequency as high as 362 Hz. That's just not very good filtering action. And that's where op-amps come in. Next time we'll look at "A Simple, Effective Receiving Aid" from the Feb. issue of QST.

JEEVES, I THINK WE'RE OVERDUE FOR A NEW HANDBOOK

..THIS REMINDS ME, JEEVES...DID YOU CHECK OUT THOSE NEW TVI COMPLAINTS YET?

From the "GILL" Cartoon Book

Reprinted with permission from ARRL.

Amateur Radio Novice Class

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Practical Circuits

Circuit Components

Basic Theory

Equipment

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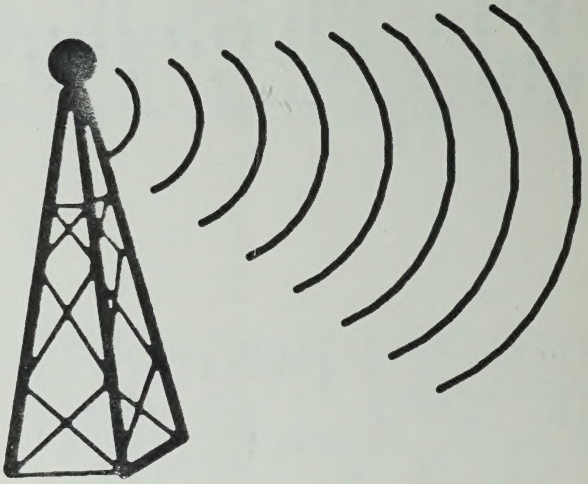
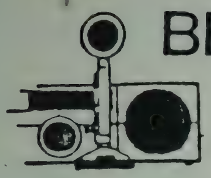

Radio Spectrum
Shooting
Antennas
Code
On the Air
New Language



BERT'S BEAT

WITH
BERT BAILEY, W4FMN

CUT DIPOLES ANYONE???????????????

While teaching the importance of the simple dipole, I was baffled at why some students insist on making a simple procedure complex. Maybe it's because they finally get down pat the relationship between free space wave- length and frequency; they do not want to learn any other formula that "ties up their spec." Anyway, after emphasizing that the "new formula" pertains to the dipole only, I bring up the tired old formula, $\lambda = 300M/f_{MHz}$ and advise them this formula pertains to all cases except where dipoles strung between 2 towers or trees are concerned. The next step is to convert the the venerable meters to feet and 300 meters = 984 feet. This is done because here in the good ole USA, at least today, we are still devoted, not to meters, but to feet. Since the typical dipole is one-half wavelength long, the 984 feet representing one wavelength is cut in half to make 492 feet. But now we must consider one other problem -----------end effect. When the dipole is strung up in the air between two supports, a capacitive effect appears at the ends of the dipole. To counter this effect, the dipole is made smaller. How much? Five percent was figured about right. So now, our 984 feet becomes --------- 468 feet. And that is our magic number.

To get down to the business of cutting dipoles to the frequency at which we want to resonate, we now use the easily remembered formula:

$$\lambda_{feet} = 468/f_{MHz}$$

So far, so good. A good simple formula with the most practical application a man can have,--build a dipole. Want to transmit on 23.4 Mhz? OK, just cut your dipole to an overall length of 468/23.4 or 20 feet. (It comes out so neat, too bad we're out of band). Actually, like filing off the front of your weapon sight, add or keep a little extra so you can perform the inevitable "cut and try" technique. The mathematics is not always on the money where Mother Nature is concerned. So we build a couple of dipoles and operate with 1:1 SWRs and everybody is happy. But now, we reflect later and ask ourselves "Is that length for the whole dipole or half of it?" Maybe after our earlier successes and time has passed we forget and DOUBLE our length or, worse yet, strip out another 5% from our magic 468. Never hotche??? Well it does and I can vouch for that, e.g. many exams given, running field day and other exercises with the Wake Tech Amateur Radio Club. (ALL our students are not amateurs Extra Class). Well, in summary, all one has to remember when erecting dipoles between two supports is to divide the frequency you want (in Mhz) into the magic number 468 and what you get is a half-wave dipole with close to a 1:1 SWR at the frequency you chose.

If the right side of the
brain controls the left
side of the body, as
researchers tell us,
then left handers are
the only people in their
right minds.
-George Edwards

TELE-BYTE

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* * SKYWARN * *

The SKYWARN program with the National Weather Service is in full swing, with quite a number of nets in operation recently. In case you haven't heard, the net meets on 146.88 any time there is severe weather in the RDU Weather Office coverage area.

Our net here in Raleigh is a little different than some of the other nets mainly because we are needed to feed information into the RDU weather office from outlying areas. For instance, Fayetteville has their own weather net, in operation only when there is severe weather in the Fayetteville area. However, our net is also in operation then - as we provide a much needed service relaying reports from the Fayetteville net.

To account for these differences, we have adopted three levels of alert. The first level is a standby mode - the repeater is available for normal QSO's - others can break in. The SKYWARN net will do its best to work around these QSO's and interfere as little as possible. The SKYWARN net will usually operate on a Level One alert status.

The second level of alertness is a more active function. Here we request that stations not involved in the net make their calls and QSY to another frequency. This level will be invoked at the discretion of the NCS, when conditions warrant. Short QSO's will still be allowed, but the primary use of the repeater is requested for SKYWARN usage.

The highest level of alertness, Level three, is only for the most severe circumstances. Before bringing the net to this level, the NCS should have the approval of an EC, DEC or the SEC, if available. Level three means there are very severe storms, possibly tornadoes, in the area, and ONLY emergency traffic is allowed on the repeater. Checkins or other traffic not directly related to a severe storm should not be on the repeater. Level three should also be terminated as soon as conditions warrant.

The Net Control's responsibility in running the SKYWARN net is a twofold - take reports of severe weather from the field, and ensure an interface is available to the National Weather Service. Note that the NCS need not be the primary contact with the NWS (and probably should not be for Level Two and Level Three alerts), but he/she must ensure that someone can contact the NWS and vice versa. Also, while the NCS need not be in the Raleigh telephone area, the contact with the NWS should be able to make a local call to them, to save that hard earned cash.

What kind of reports is the NWS (and the net) looking for? Basically, anything of a severe nature. That is, winds high enough to cause structural damage, trees to fall, electric or telephone lines down, etc. Also hail of marble size or better, rain heavy enough that you would pull off the road, and of course, tornadoes. Reports like "We are getting a light rain in ....." are nice, but are not passed on to the NWS.

Can you be of assistance? Of course! What do you need to do? Check in and listen - and report anything severe. You can do many of your normal activities while listening, but be aware of what's goind on around you. One thing we don't want is anyone getting hurt. If you are unlucky enough to see a tornado, ensure you and your family are safe - then report it. The same goes for any other severe weather. We need your help, but we need you even more.

If you have helped out before, we appreciate your involvement. If not, give us a chance - it may will be one of the most important things you ever do.

Jerry, AI0K

* * * PACKET RACKET * * *

by AB4S

BEGINNER TIPS

I have been heard to say that beams just don't work well on packet radio. This comment has caused not a little confusion and I can understand why. Let me dwell on this for a few minutes here.

First of all, one of the things that make packet radio different from RTTY is the intelligence in the Terminal Node Controller (TNC) and the things it will take care of for you. One of the main things it does is to attempt to keep you from "doubling" with someone else on the same frequency. As a matter of fact, that is what allows sixty to eighty stations in the Wake County area to operate on 145.010 mHz without complete chaos. What does this have to do with using a beam antenna?

In order to avoid collisions of signals, your TNC will listen to the frequency to be sure that it doesn't hear any other signals before it will transmit (wish we could all learn to do that on hf!). If you us a beam antenna, or any other directional antenna, for that matter, you are reducing the odds that the TNC will be able to hear everything else that is going on. That is what a beam is really for anyway. Imagine two stations in direct contact with each other with multi-element yagi antennas pointed at each other. Station "A" listens and hears no activity, so it sends a packet to station "B." Let's assume that there was other activity coming from a station directly behind "A" and his highly directional antenna kept him from hearing it. Now, over at station "B", there are two signals at the same time -- both of them directly in front of his big beam antenna. Station "B" TNC is totally confused by both signals and doesn't copy either of them. After a short time, a retry will be transmitted and maybe, just maybe, it will not collide. The point is that you should give your smart TNC every opportunity to hear other signals so it will not embarrass itself by doubling.

In other matters, I want to touch on the subject of mixed-case text again. When the FCC authorized ASCII code on the Amateur bands, they enabled us to use both upper-case and lower-case characters for the first time. To many, this does not seem to be an important advantage, but it certainly is. I have seen some figures in Human Factors Engineering studies which show the slow down required to read text in all upper case (all capital letters). There is a simple explanation for this slow down. Please notice that all words which are upper case have the same general shape -- rectangular. NOW IS THE TIME FOR ALL GOOD MEN TO START USING MIXED CASE IN DIGITAL TRANSMISSIONS will always be harder (more time consuming) to read than: Now is the time for all good men to start using mixed case in digital transmissions. Many times we don't realize it, but we all do some sight reading and when a word has a characteristic shape that helps, it will always be faster and easier to read. Heck, I'll bet that you would be hard pressed to find someone using a terminal on their packet station that is not capable of mixed case operation. Give it some thought and give the other stations a break.

HELP WANTED

NOMINATION COMMITTEE members wanted. No experience. Influence RARS' future! Apply WA9NEW, 779-0266.

NOVICE CLASS instructors needed. Monday evenings, one or more weeks, Sept - Dec. Apply N4MCC (w-248-2394)

HAMFEST CHAIR: Some hamfest experience helpful. Endless months of intensive work, one day of pure h___. Expert management skills essential. No pay. Apply WA9NEW, 779-0266.

CONTRIBUTING EDITORS: Many openings. See your work in print. NO publishing fees! Apply WA4APK.

RED CROSS COMMUNICATORS needed for State Fair week. No experience. 48 openings! Apply WB4MCU, 876-0998.

Well, that's about it for this month. If you have a subject you would like to see addressed in PACKET RACKET, or if you would like to contribute an article for publication herein, please let me know. I am not the editor of this column, but I do function as the coordinator and will be happy to hear from you. Please send information to:

Ed Stephenson, AB4S
700 Madison Ave.
Cary, NC 27511

6. The Transmitter (and how to use it)

To summarize:

When we originally keyed up we first found a vacant downlink frequency and then determined what uplink frequency was necessary in order to be heard there. We did it this way to prevent accidentally interfering with a QSO. Now that we have established a vacant downlink frequency for our QSO, we want to stay there. We do this, by not retunning the receiver, but by making fine adjustments to the transmitter to account for a changing doppler shift. In other words, when necessary, we want to carefully and precisely tune the transmitter so we stay on the same downlink frequency!

OSCAR-10 does represent a significant contribution in frequencies we amateurs may use for intercontinental and DX communications. It also gives us a new responsibility to be careful that we don't blast out other users, either side of us like so often happens on the crowded HF band. There is no excuse for you not to hear the QSO's in progress either side of you if you listen carefully. One of the beauties of full duplex communications, is being able to hear at the same time as you are talking, and therefore it gives us the tools to be much more courteous. Let's use those tools wisely and keep OSCAR-10 a very friendly place to talk.

Take careful notice of the doppler shift that will be predicted if you have a computer tracking program. Learn how it fits in with the difference you find relative to where you predict OSCAR-10's downlink to be and where you actually receive it. These observations will allow you to more accurately predict where your downlink signal will be and how it might shift.

A technique I find extremely useful (since I enjoy RTTY over OSCAR-10 and it uplinks on lower side band and downlinks on upper sideband, just as voice does), is to send out a CQ or a test set of RYs and an ID and copy the downlink signal until the crossed ellipses, typically used for RTTY tuning, are exactly horizontal and vertical. I write down the two frequencies that were used for the uplink and the downlink frequency and I add them. I get what's called then a "translation frequency," and its typically around 581.0050 MHz. (A "translation frequency" similar to this is what the mode B transponder was based on.) It will change a few cycles with time based on the doppler shift but over the span of a QSO or two stay relatively constant. I then take a small calculator, the kind you can buy at Radio Shack now for five dollars, that has one memory, and I enter this number in that memory. Then as I tune across the band and find a QSO that I want to break in on, or find a open spot that I wish to CQ on, I can take that frequency, the downlink frequency, subtract it from this translation frequency, and come up with an uplink frequency. This method is very accurate in being able to place the downlink signal where you want it in the passband and not bother other people.

If you do not have the luxury of a RTTY system the accepted method is to calculate the frequency as close as possible. Then, when there is a break in the QSO, send a string of CW "dots" or SSB "hellos." Fine tune your transmitter until you clearly hear yourself.

TO THE EDITOR:

I read with great interest the description in the August issue of field day at Wake Tech. As a participant at the W4DW field day event, I can attest to the challenge of operating under such adverse weather conditions. However, I was shocked (pardon the pun) to see such blatant disregard for personal safety being given such praise. I remember clearly my novice class just two years ago, and the strong emphasis placed on safety in the shack. It wasn't enough to just shut down during a thunderstorm, we were told. The best way to deal with this situation is to unplug the rig, disconnect the antenna leads, and THROW THEM OUT THE WINDOW. This was considered a fitting way to protect your rig, your home, and your life.

So now I see that an operator who did not shut down in a thunderstorm is considered a minor hero. What is an impressionable young ham to think? Was I taught excessive caution? Or does a contest merit such disregard for normal safety practices? I am reminded of WA9NEW's column about balancing a hobby with one's other interests and efforts (even ham radio!), and wonder where the balance rests in this instance. I would appreciate comments on this subject from other hams.

Regards,
KB4MDY
Carl Gleason

While we're talking about transmitters, lets discuss uplink power, the typical 430MHz transmitter puts out around 10 watts of power. Very few of them, the ICOM 471H a notable exception, put out significantly more than that. You'll find that it takes 10 watts or more to uplink effectively. What you want to do is begin your OSCAR-10 session by listening to the beacon, noting carefully what kind of S meter readings you get from the downlink signal. S3, S5, S6 etc. Next, pick a frequency to call CQ on, as we've just described to ensure that your signal comes out in that part of the pass band you desire then start transmitting. Since this is duplex, monitor your downlink signal strength carefully, and adjust your uplink power so your downlink signal strength is slightly less than that you copied on the beacon. If we transmit up a lot of power, (which can certainly be done with a large linear amplifier and the high gain antennas available) we can activate the automatic level control circuitry in OSCAR-10, which will then cut back on the power available for everyone else on the satellite. It will make everyone else who doesn't have 14 gigawatts of uplink power unable to use the bird. This is certainly not fair or in anyway in the spirit of amateur radio. I encourage you to uplink with 10 watts first, listen and increase your power only if can't hear yourself and then only until your downlink signal is about equal to the received signal strength that you copied on the 145.810 MHz beacon. This is good practice on OSCAR-10 and something that benefits everyone. You will find in some cases a linear is needed. There are several on the market that do an excellent job of amplifying uplink signals. Again I reference you to our Appendices for some discussion on those. I found that with an excellent receiving station as previously discussed, and good operating technique, I have had many QSOs with 10 watts of uplink power.

Continued Next Month......

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UPGRADE TESTS SEPT. 13

RARS meets each first Wednesday at 7:30 at First Presbyterian Church, 116 S. Salisbury Street

Calendar

Sept 3 - Regular RARS Meeting
First Presbyterian Church
7:30 pm Follow the signs!

Sept 10 - YL RARS Dinner Meeting
6:30 pm Cameron Vil. K & W

Sept 10 - RARS Exciter copy deadline

Sept 13, 14 - ARRL VHF QSO Party
See July QST

Sept 17 - RARS Advisory Board Mtng.
7:30 pm NCSU Faculty Club
All Members Welcome!

Oct 5 - Rock Hill, SC Hamfest

Oct 12 - Maysville, NC Hamfest

Oct -- - NC State Fair/RARS
Public Service Project
Contact Jack Kenny, WB4MCU